

AlphaServer 1000/1000A

Model 5/xxx

Owner's Guide Supplement

Order Number: EK-AL530-OG. B01

October 1996

This book is a supplement to the AlphaServer 1000 or AlphaServer 1000A *Owner's Guide* and should be used in conjunction with the *Owner's Guide*. It provides supplemental information on system hardware and firmware.

Digital Equipment Corporation
Maynard, Massachusetts

First Printing, July 1996

Second Printing, October 1996

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About This Supplement

Purpose

This supplement updates portions of your AlphaServer 1000 or AlphaServer 1000A *Owner's Guide*. Be sure to consult both your *Owner's Guide* and your *Owner's Guide Supplement*. Information in this document supersedes the information in your *Owner's Guide*.

Audience

The information in this supplement is intended for users, system managers, and others who perform system management tasks. If you will be administering, operating, configuring, or adding options to your AlphaServer system, you will need to refer to the information in this book.

Users of Windows NT

For users of the Windows NT operating system, many of the tasks of managing and configuring your server are performed via the AlphaBIOS interface. Information in this supplement on the AlphaBIOS firmware interface replaces the information on the ARC firmware interface in your *Owner's Guide*. To perform diagnostics using the `test` command, you need to switch to the SRM console. Consult Chapter 1 of this supplement and refer to the *Owner's Guide* for more information on the SRM console.

Users of OpenVMS and Digital UNIX

Generally, the SRM console supports systems that run the Digital UNIX and OpenVMS operating systems, and this supplement should be used in conjunction with the material on the SRM console in the *Owner's Guide*. The AlphaBIOS interface must be used to run a configuration utility such as the EISA configuration utility (ECU). For information on running such a utility, see Chapter 4 of this supplement.

About This Supplement

Before You Use This Guide

Some procedures in this document require that you refer to your operating system documentation. Please have your operating system documentation available for use with this guide.

Reader's Comments

Digital welcomes your comments on this or any other manual.

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Organization

This supplement is organized into five chapters:

Chapter 1, "Hardware Updates," shows the location of memory option cards on the system board and the location of jumpers on the CPU card. It also contains new beep code information. The information in this chapter supersedes that provided in the *Owner's Guide*.

Chapter 2, "Using the SRM Console," includes updated `show config` command displays for users of the SRM console. The information in this chapter supersedes that provided in the *Owner's Guide*.

Chapter 3, "Introduction to the AlphaBIOS Console," includes an introduction to the AlphaBIOS console and hints for navigating within AlphaBIOS.

Chapter 4, "Using the AlphaBIOS Menus," provides step-by-step instructions for performing common system setup and maintenance tasks with AlphaBIOS, troubleshooting information, and instructions for upgrading the AlphaBIOS firmware.

Chapter 5, "Index to the AlphaBIOS Menu Functions," contains detailed information on AlphaBIOS menus and on custom configurations.

About This Supplement

Conventions

The following table lists the typographical conventions used in this guide.

Convention	Meaning
Warning:	A warning contains information to prevent injury.
Caution:	A caution contains information essential to avoid damage to equipment or software.
Note:	A note calls the reader's attention to important information.
boot	System output and commands that you enter are shown in this special typeface. Commands shown in lowercase letters can be entered in either uppercase or lowercase. Console command abbreviations must be entered exactly as shown.
1	In figures, a numbered callout labels a specific part. In text, a corresponding numbered callout explains the labeled part of the figure.

1

Hardware Updates

Introduction

The model 5/xxx system hardware differs from that of previous models in several respects. Memory modules are organized differently on the system board, CPU card jumpers are located and set differently, beep codes have been added, as well as new environment variables. The latest revision of the motherboard does not contain an onboard graphics controller.

Information in this chapter supersedes that in your *Owner's Guide*. Topics in this chapter include:

- Memory Modules
- CPU Card Jumper Settings
- Beep Code Information
- New environment variables
- Onboard VGA removed
- New Halt Button Functionality

Memory Modules

The system unit supports 16 single in-line memory module (SIMM) connectors on the system board. The SIMM connectors are grouped in four memory banks consisting of four memory modules. Figure 1-1 shows the memory banks and their memory module connectors.

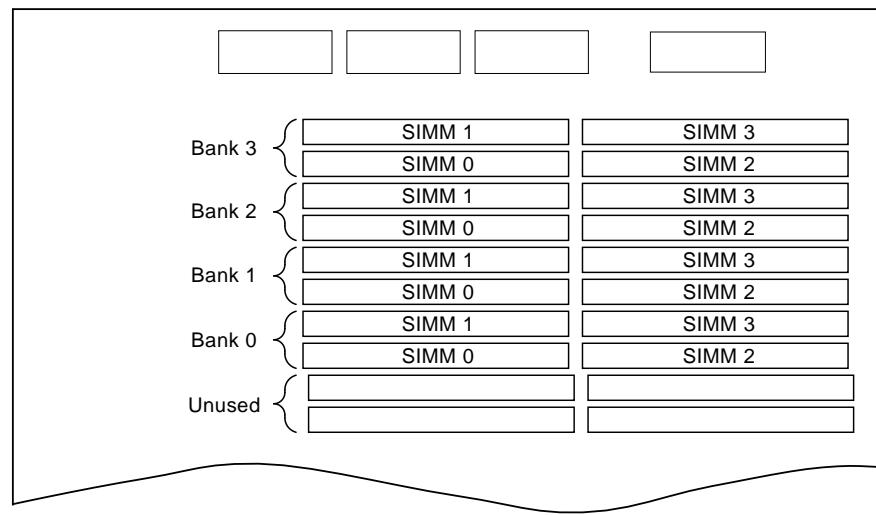
Hardware Updates

Note: A change in the ECC (error correction code) from longword to quadword allows the code to reside on the memory modules, eliminating the need for ECC modules on AlphaServer 1000/1000A Model 5/xxx systems.

When installing memory modules, keep in mind the following rules:

- A memory option consists of four memory modules.
- A minimum of one memory bank (four modules) is required.
- All memory modules within a bank must be of the same size.
- An ECC SIMM is not compatible with memory bank SIMMs. Do not place an ECC SIMM in a memory slot.

Figure 1-1 Memory Modules



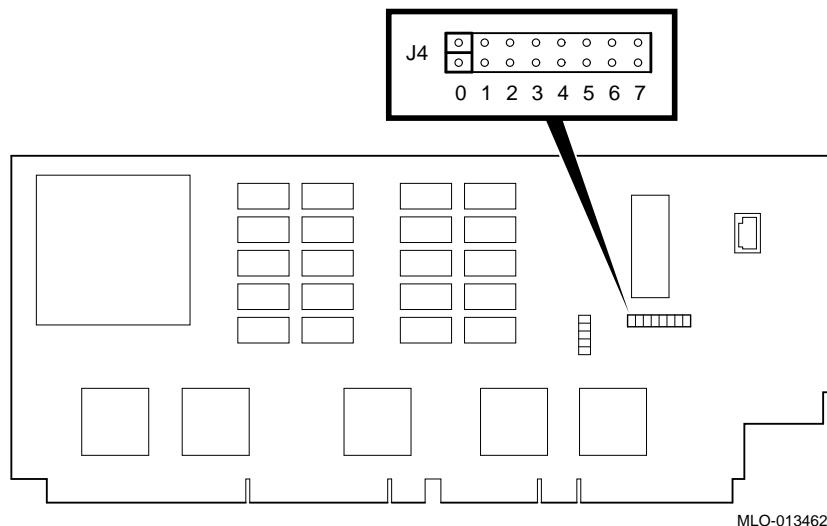
MLO-013455

CPU Card Jumper Settings

Your system has one of two possible variants of the CPU card. Figure 1-2 shows one variant of the CPU card; Figure 1-3 shows the other. Compare the card on your system to those in these figures to determine which variant of the CPU you have.

A jumper on the CPU card activates the fail-safe loader and provides the standard boot setting. Bank 4 allows the system operate with Bcache disabled. The jumper is labeled either J1 or J4, depending on which variant of the CPU card you have. Figure 1-2 shows the J4 jumper and its default setting. Figure 1-3 shows the J1 jumper and its default setting. Table 1-1 shows the other jumper setting functions.

Figure 1-2 CPU Card J4 Jumper Settings



Hardware Updates

Figure 1-3 CPU Card J1 Jumper Settings

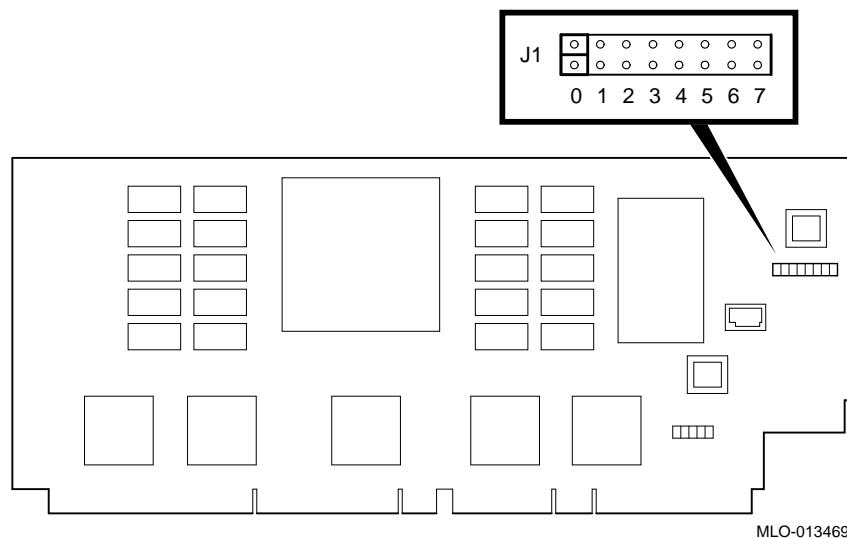


Table 1-1 Jumper Setting Functions

Bank	Jumper Setting Function
0	Standard boot setting (AlphaServer 1000/1000A systems)
1	Standard boot setting (AlphaServer 1000/1000A systems)
2	Mini console setting (Internal use only)
3	Mini console setting (Internal use only)
4	Power up with no backup cache: Allows the system to run despite bad Bcache until a replacement CPU board is available
5	Mini console setting (Internal use only)
6	Mini console setting (Internal use only)
7	Fail-Safe loader setting: selects fail-safe loader firmware

Beep Code Information

Two beep codes that you may encounter while using your system should be added to the codes listed in Chapter 8 of your *Owner's Guide*. The codes are shown in Table 1-2.

Table 1-2 Beep Codes

Beep Code	Meaning	Action
1 at system start-up	System start-up is successful.	None
1-2-4	Backup cache error	Disable Bcache on power-up using Bank 4 of the J1 or J4 jumper on the CPU board. Call your service representative for a replacement CPU board.

Hardware Updates

Environment Variables

Three new environment variables for modems used with serial ports COM1 and COM2 have been added. Use the SRM console commands, `set` and `show`, to set and examine these variables. Use the `init` command to put the new settings into effect after using the `set` command. The new environment variables are shown in Table 1-2.

Table 1-1 Environment Variables

Variable	Function
<code>com1_baud</code> , <code>com2_baud</code>	Sets the baud rate of the COM1 or COM2 port. The default baud rate is 9600.
<code>com1_flow</code> , <code>com2_flow</code>	The <code>com1_flow</code> and <code>com2_flow</code> environment variables indicate the flow control on the serial ports. Defined values are: NONE—No flow control SOFTWARE—Use XON/XOFF (default value) HARDWARE—Use modem signals CTS/RTS. BOTH—Use SOFTWARE and HARDWARE
<code>com1_modem</code> , <code>com2_modem</code>	The <code>com1_modem</code> and <code>com2_modem</code> environment variables are used by the operating system to determine if a modem is present: ON—Modem is present OFF—Modem is not present (default value)

No Onboard Video Controller

The latest system board revision does not contain the onboard CIRRUS VGA controller.

The AlphaServer 1000/1000A configuration file provided in release 1.10 of the EISA Configuration Utility (ECU) provides a default setting of DISABLED for the CIRRUS VGA controller. If you run ECU version 1.10 on a system that contains and uses the onboard VGA, you may have to manually set the controller to ENABLED while running the ECU.

Hardware Updates

If you run ECU version 1.9 or earlier on an AlphaServer 1000A that does not have the onboard CIRRUS VGA controller, you may have to manually set the controller to DISABLED while running the ECU.

New Halt Button Functionality

If the Halt button is depressed when the system is powering up, no nvram scripts are executed and the system powers up to the SRM console prompt, >>>.

Also, if the system is in secure mode, the Halt button can be used to clear the console password while logging in as follows:

At the enter password prompt, depress and release the Halt button then press the Return Key. This will clear the password.

2

Using the SRM Console

Introduction

Because the AlphaServer 1000/1000A systems support more than one operating system, they offer two separate interfaces to the console subsystem. Systems that run the Digital UNIX and OpenVMS Alpha operating systems are supported by the Alpha System Reference Manual (SRM) console. Model 5/xxx systems that run the Windows NT operating system are supported by the AlphaBIOS console. But whatever the operating system you are running, you may need to access both consoles, depending on the task you want to perform. For example, users of Windows NT systems need to switch to the SRM console to perform diagnostics using the `test` command.

This chapter includes updated information on the `show config` command and display for AlphaServer 1000 and 1000A systems. For general information on the SRM console, see the *Owner's Guide*.

The `show config` Command Display

To verify your system configuration, enter the `show config` command at the SRM console prompt. This command displays all devices found on the system bus, PCI bus, and EISA bus, as well as revision level information. You can use the information in the display to identify target devices for commands such as `boot` and `test`, as well as to verify that the system sees all the devices that are installed.

Using the SRM Console

AlphaServer 1000A Systems

The AlphaServer 1000A `show config` command display (Example 2-1) includes these elements:

Firmware: Version numbers for the firmware code, PALcode, SROM chip, and CPU are displayed.

Memory: Size and configuration for each bank of memory are displayed.

Hose 0, Bus 0, PCI: All controllers on Hose 0, Bus 0 of the primary PCI bus are displayed. For storage controllers, the associated devices are also displayed.

Slot 7 is assigned to the PCI-to-EISA bridge chip

Slot 8 is assigned to the PCI-to-PCI bridge chip

Slots 11-13 correspond to physical PCI option slots on the primary PCI bus:

Slot 11 = PCI 11

Slot 12 = PCI 12

Slot 13 = PCI 13

Note: If the system finds PCI devices it does not recognize, the device and vendor ID will appear as 0000 1011 in the `show config` display. This does not mean that the device is not supported, only that it is not in the SRM table of known devices.

Hose 0, Bus 1, EISA: All controllers on Hose 0, Bus 1 of the EISA bus are displayed. The logical slot numbers in the left column of the display correspond to physical EISA option slots (1 and 2). For storage controllers, the associated devices are also displayed.

Hose 0, Bus 2, PCI: All controllers on Hose 0, Bus 2 of the secondary PCI bus are displayed. The logical slot numbers are listed in the left column of the display. For storage controllers, the associated devices are also displayed.

Slot 0 corresponds to the SCSI controller on the system board, along with storage drives on the bus.

Slots 1-4 correspond to physical PCI option slots on the secondary PCI bus:

Slot 1 = PCI 1

Slot 2 = PCI 2

Slot 3 = PCI 3

Slot 4 = PCI 4

Hose 0, Bus 3, PCI: If PCI options contain a PCI-to-PCI bridge, such as the DECchip 21050-AA in the secondary PCI bus (slot 4 in Example 2-1), the additional bus is represented in the display. For each option that

Using the SRM Console

contains a PCI-to-PCI bridge, the bus number increments by 1, and the logical numbers start anew at 0.

Note: The onboard SCSI controller (Qlogic 1020A) is always device pka.

Example 2-1 AlphaServer 1000A show config Command Display

```
>>> show config
                               Digital Equipment Corporation
                               AlphaServer 1000A 5/300
Firmware
SRM Console: X4.5-4322
ARC Console: 5.12
PALcode:      VMS PALcode V1.18-2, OSF PALcode V2.21-4
Serial Rom:   T1.1
Processor
DECchip (tm) 21164-5    300MHz
Memory
64 Meg of System Memory
Bank 0 = 64 Mbytes (16 MB per Simm) Starting at 0x00000000
Bank 1 = No Memory Detected
Bank 2 = No Memory Detected
Bank 3 = No Memory Detected
Slot  Option          Hose 0, Bus 0, PCI
      7   Intel 82375EB           Bridge to Bus 1, EISA
      8   DECchip 21050-AA        Bridge to Bus 2, PCI
      11  DECchip 21040-AA  ewb0.0.0.11.0 08-00-2B-E5-CC-B1
Slot  Option          Hose 0, Bus 1, EISA
      1   DE422                era0.0.0.1001.0 08-00-2B-39-4F-4E
Slot  Option          Hose 0, Bus 2, PCI
      0   Qlogic ISP1020       pka0.7.0.2000.0  SCSI Bus ID 7
                           dka0.0.0.2000.0  RZ26L
                           dka400.4.0.2000.0 RRD43
                           Bridge to Bus 3, PCI
Slot  Option          Hose 0, Bus 3, PCI
      0   DECchip 21040-AA  ewa0.0.0.3000.0 08-00-2B-E2-31-68
      2   Qlogic ISP1020       pkb0.7.0.3002.0  SCSI Bus ID 7
      3   Qlogic ISP1020       pkc0.7.0.3003.0  SCSI Bus ID 7
>>>
```

Using the SRM Console

AlphaServer 1000 Systems

The AlphaServer 1000 `show config` command display (Example 2-2) includes these elements:

Firmware: Version numbers for the firmware code, PALcode, SROM chip, and CPU are displayed.

Memory: The memory size and configuration for each bank of memory is displayed.

Hose 0, Bus 0, PCI: All controllers on Hose 0, Bus 0 of the primary PCI bus are displayed. For storage controllers, the associated devices are also displayed.

Slot 6 is assigned to the PCI-to-EISA bridge chip

Slot 7 is assigned to the PCI-to-PCI bridge chip

Slots 11-13 correspond to physical PCI option slots on the primary PCI bus:

Slot 11 = PCI 11

Slot 12 = PCI 12

Slot 13 = PCI 13

Note: If the system finds PCI devices it does not recognize, the device and vendor ID will appear as 0000 1011 in the `show config` display. This does not mean that the device is not supported, only that it is not in the SRM table of known devices.

Hose 0, Bus 1, EISA: All controllers on Hose 0, Bus 1 of the EISA bus are displayed. The logical slot numbers in the left column of the display correspond to physical EISA option slots 1-8. For storage controllers, the associated devices are also displayed.

Slot 1 = EISA 1

Slot 2 = EISA 2

Slot 3 = EISA 3

Slot 4 = EISA 4

Slot 5 = EISA 5

Slot 6 = EISA 6

Slot 7 = EISA 7

Slot 8 = EISA 8

Using the SRM Console

Note: The onboard SCSI controller (NCR 53C810) is always device pka.

Example 2-2 AlphaServer 1000 show config Command Display

```
>>> show config
                               Digital Equipment Corporation
                               AlphaServer 1000 5/300

Firmware
SRM Console: X4.5-4352
ARC Console: 5.12
PALcode:      VMS PALcode V1.18-2, OSF PALcode V1.21-4
Serial Rom:   T1.1

Processor
DECchip (tm) 21164-5    300MHz

Memory
64 Meg of System Memory
Bank 0 = 64 Mbytes (16 MB per Simm) Starting at 0x00000000
Bank 1 = No Memory Detected
Bank 2 = No Memory Detected
Bank 3 = No Memory Detected

Slot  Option          Hose 0, Bus 0, PCI
      6     NCR 53C810  pka0.7.0.6.0    SCSI Bus ID 7
                  dka0.0.0.6.0    RZ26L
                  dka100.1.0.6.0   RZ26L
                  dka400.4.0.6.0   RRD43

      7     Intel 82375EB      Bridge to Bus 1, EISA
      11    DECchip 21040-AA  ewa0.0.0.11.0   08-00-2B-E5-CC-B1
      13    S3 Trio64/Trio32

Slot  Option          Hose 0, Bus 1, EISA
      1     DE422           era0.0.0.1003.0  08-00-2B-39-4F-4E
      8     Adaptec         pka0.7.0.1008.0  SCSI Bus ID 7

>>>
```


3

Introduction to the AlphaBIOS Console

Introduction

This chapter describes the AlphaBIOS interface and includes the following topics:

- The AlphaBIOS Console
- Windows NT System Startup
- The Firmware Menus
- Help in Navigating AlphaBIOS
- Primary Operating System and the Auto Start Option

The AlphaBIOS Console

AlphaBIOS is a program used to initialize and set up the I/O system of the computer, which includes the PCI bus and connected devices such as SCSI disk controllers, the video display, the diskette drive, and the keyboard. The AlphaBIOS program instructions are contained within computer chips called flash ROMs (read-only memory) that are located on your system board. The chips can be electronically reprogrammed, allowing you to upgrade your AlphaBIOS firmware without removing and installing chips.

AlphaBIOS provides a menu-based interface to the console subsystem that supports the Microsoft Windows NT operating system for hardware based on the Alpha processor. The console subsystem contains special software, called firmware, that interacts directly with the hardware components and facilitates interaction between the system hardware and the operating system.

Introduction to the AlphaBIOS Console

Windows NT Users

Users of the Windows NT operating system can use the information in this manual along with your system Owner's Guide to configure, start, update, and troubleshoot your Alpha system. Please note that this supplement supersedes the information in the Owner's Guide related to the ARC firmware interface for Windows NT.

OpenVMS Alpha and Digital UNIX Users

Users of the OpenVMS Alpha and Digital UNIX operating systems need to use the AlphaBIOS interface *only* to run the EISA Configuration Utility (ECU), RAID Configuration Utility (RCU), or other option-specific configuration utilities. To switch from the SRM console to the AlphaBIOS console on your system, type either of the following commands at the SRM prompt: `arc` or `ecu`. Either of these commands will access the AlphaBIOS Boot menu. For information on running the ECU, see "Running a Configuration Utility" in Chapter 2.

ARC vs AlphaBIOS

The AlphaBIOS firmware interface replaces the ARC firmware interface. Throughout this chapter and Chapter 4 you will find notes that indicate where the AlphaBIOS interface differs significantly from the previous ARC interface.

Using a Serial Line

AlphaBIOS can be run from the graphics console or from a serial line. If you use the serial line, refer to Table 3-1 for serial line equivalents to graphics line keyboard commands.

Introduction to the AlphaBIOS Console

Table 3-1 Serial Line Keyboard Commands

Graphics Line Commands	Serial Line Commands
F1	CTRL +A
F2	CTRL +B
F3	CTRL +C
F4	CTRL +D
F5	CTRL +E
F6	CTRL +F
F7	CTRL +P
F8	CTRL +R
F9	CTRL +T
F10	CTRL +U
Insert	CTRL +V
Delete	CTRL +W
Backspace	CTRL +H
ESC	CTRL +[

Windows NT System Start-up

For systems using the Windows NT operating system, AlphaBIOS initializes the video and keyboard devices first. Thus, if AlphaBIOS does not start when you turn on your computer, check first to see that the keyboard is plugged in and working and that the video card and monitor are properly connected and working. After the video and keyboard are initialized, AlphaBIOS displays a windowed, graphical-style user interface (UI), where progress is displayed as initialization continues.

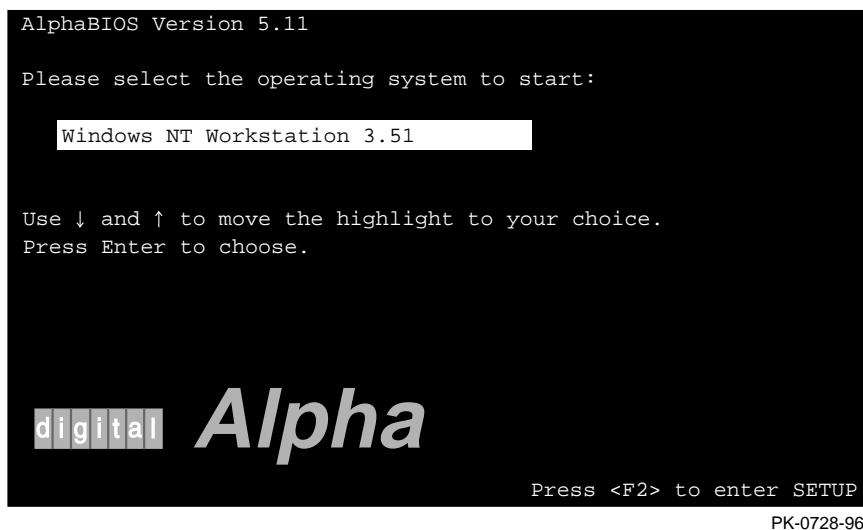
Next, a memory test verifies that the memory is fully functioning. While the memory test runs, it shows each megabyte (MB) of memory tested. If you do not want to test memory during initialization, you can disable the test while it is running by pressing the space bar, or use the CMOS Setup menu to disable it.

Introduction to the AlphaBIOS Console

After memory is tested, AlphaBIOS detects and initializes SCSI disk controllers connected to the computer. As each controller is detected, AlphaBIOS probes its SCSI bus and reports each of the SCSI devices detected.

Finally, after the SCSI initialization is complete, AlphaBIOS leaves the initialization window and displays the Boot menu, shown in Figure 3-1. Whenever you turn on or reset your system, the Boot menu is displayed.

Figure 3-1 The Boot Menu

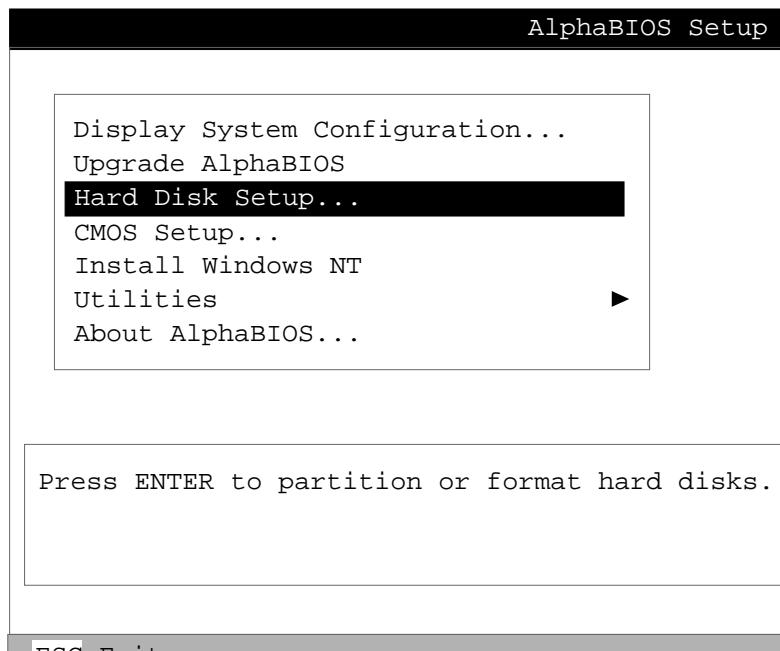


The Boot menu lists each of the operating systems that have been set up on your computer. From the boot menu, you can choose which of the operating systems you want to boot, or you can enter the AlphaBIOS Setup menu.

The Firmware Menus

By pressing F2 in the Boot menu, you can access the AlphaBIOS Setup menu, shown in Figure 3-2. From the Setup menu you can access other menus to perform the tasks listed in Table 3-2.

Figure 3-2 AlphaBIOS Setup Menu



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Introduction to the AlphaBIOS Console

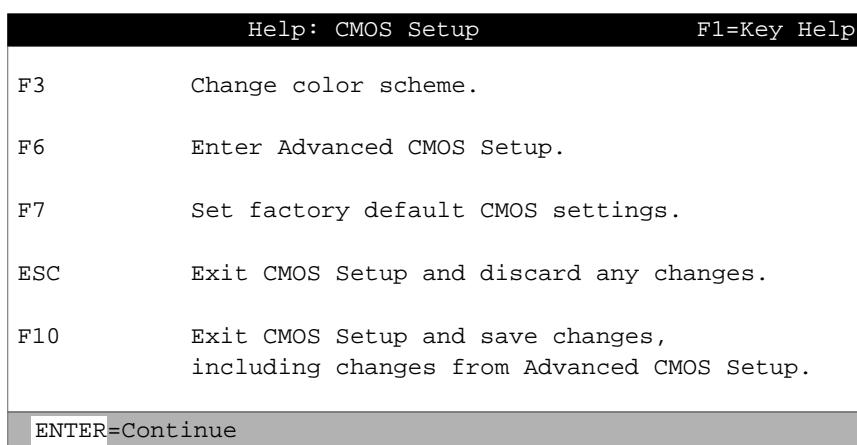
Table 3-2 Choosing the Right Menu

Task	Menu
Enable the Auto Start option	CMOS Setup (Standard)
Set date and time	CMOS Setup (Standard)
Configure the diskette drive and keyboard	CMOS Setup (Standard)
Test memory at system start-up	CMOS Setup (Advanced)
Set PCI parity	CMOS Setup (Advanced)
Set password protection	CMOS Setup (Advanced)
Select a console (AlphaBIOS or SRM)	CMOS Setup (Advanced)
Run a configuration utility	Utilities
Set up the hard disk	Hard Disk Setup
Display the system configuration	Display System Configuration
Upgrade the AlphaBIOS firmware	Upgrade AlphaBIOS
Verify and change operating system selections	Utilities

Help in Navigating AlphaBIOS

Two levels of keyboard help are available for AlphaBIOS. To reach the first level, press F1 once from the CMOS Setup menu. This Help display, shown in Figure 3-3, provides explanations of the keystrokes available for the part of the AlphaBIOS interface currently displayed.

Figure 3-3 First Level Help Display

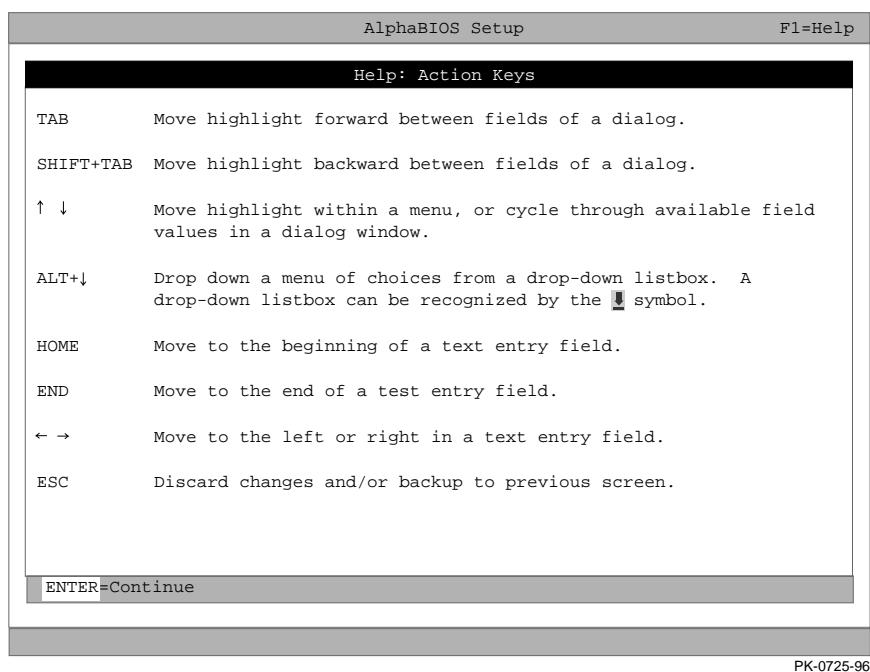


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Introduction to the AlphaBIOS Console

The second level of keyboard help, reached by pressing F1 twice from the CMOS Setup menu, shows explanations of the keystrokes available for navigating the interface throughout the AlphaBIOS firmware interface. Figure 3-4 shows an example of the second Help display.

Figure 3-4 Second Level Help Display



Primary Operating System and the Auto Start Option

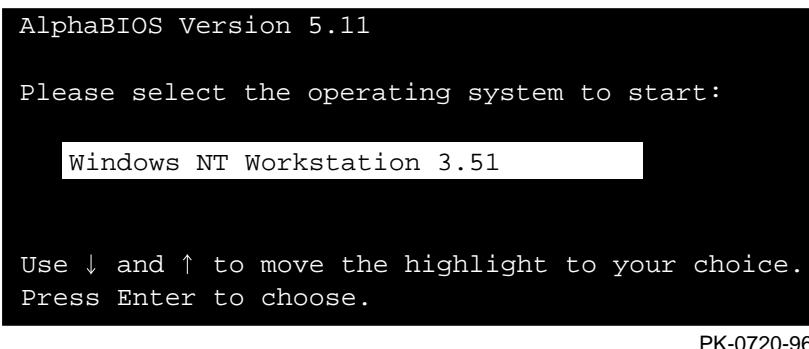
Alpha systems can have multiple versions of Windows NT installed at the same time. This feature is useful, for example, when testing application compatibility across different versions of Windows NT.

Each time you install a separate version of Windows NT, a new operating system selection is created. Although you can start any of the installed versions of Windows NT, one of the installed versions must be the primary operating system. The version you select as the primary operating system is the one that automatically starts if the Auto Start option is enabled in AlphaBIOS.

Introduction to the AlphaBIOS Console

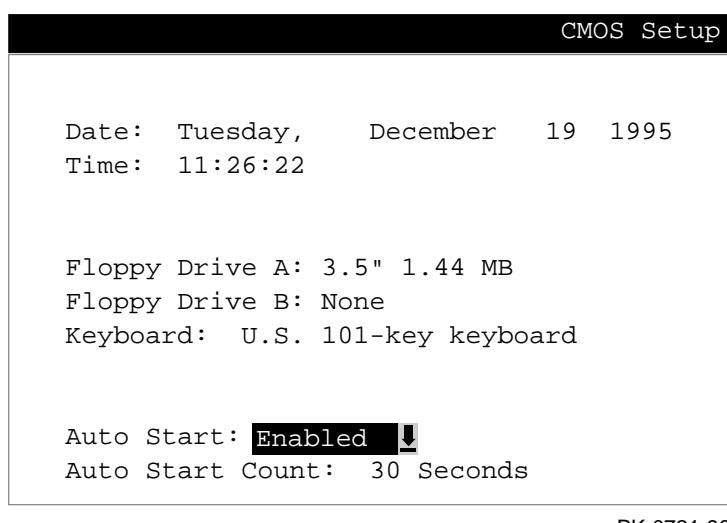
Figure 3-5 shows an example of a primary operating system selection as it appears in the Boot menu. Notice that the primary operating system is listed first on the boot display.

Figure 3-5 Primary Operating System Selection



The primary operating system starts automatically if the Auto Start option is enabled in the CMOS Setup menu, shown in Figure 3-6.

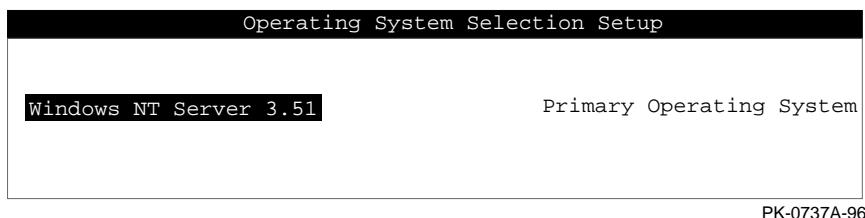
Figure 3-6 Auto Start Option Enabled



Introduction to the AlphaBIOS Console

The primary operating system can be selected in the Operating System Selection Setup menu, shown in Figure 3-7.

Figure 3-7 Operating System Selection Setup Menu



Note: ARC vs AlphaBIOS

With ARC firmware, the group of values associated with a particular Windows NT installation are called a “boot selection,” and information is accessed from separate menus using the Manage Boot Selections menu. With AlphaBIOS, these values are called an “operating system selection,” and information is accessed through the Operating System Selection Setup menu. Alternative choices for values such as disk and partition numbers are available from drop-down list boxes, and only valid values are displayed. When creating new selections, you can use an existing selection as a template.

4

Using the AlphaBIOS Menus

Introduction

This chapter introduces the AlphaBIOS menu displays and explains how to perform common tasks needed to get up and running.

Topics covered in this chapter include:

- Preparing to Install the Operating System
- System Setup Tasks
- Displaying Your Configuration
- Running a Configuration Utility
- Setting Up Password Protection
- Upgrading AlphaBIOS
- Troubleshooting Suggestions

Using the AlphaBIOS Menus

Preparing to Install the Operating System

Note: Systems with Pre-installed Windows NT Software

If you have a system with Windows NT installed at the factory, Windows NT setup will start automatically the first time you turn on your system. If your system does not have Windows NT pre-installed, you must have a CD-ROM drive attached to your system to install Windows NT. Refer to your operating system documentation to install your operating system.

To prepare your system for a first-time installation of Windows NT from CD-ROM, follow these steps:

Note: Steps 1 and 2 in the following procedure are necessary only when you are first setting up your system. On subsequent installations and upgrades, begin at step 3.

1. From the AlphaBIOS Setup menu, select the CMOS Setup menu and press Enter. Set the system date and time.
2. Return to the main AlphaBIOS Setup menu, select “Hard Disk Setup,” and press Enter.

You can easily set up the first hard disk in your system (disk 0) with the recommended default partition arrangement by performing an express setup. Note, however, that express setup does not format the large partition with NTFS. You will have the opportunity to do this during the Windows NT installation.

Note: The hard disk with the lowest SCSI ID number is seen as disk 0 by AlphaBIOS.

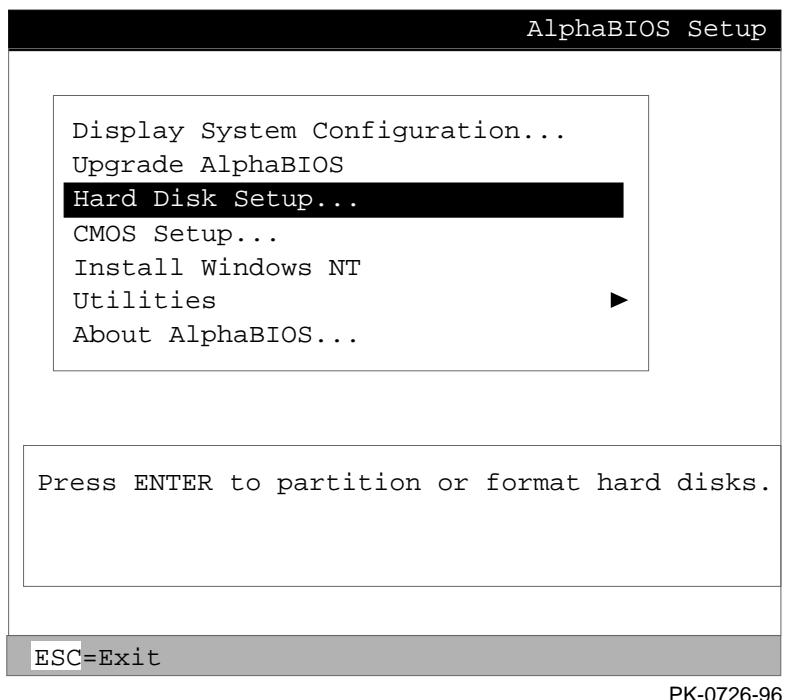
Caution: If you have any needed information on your disk, be sure to back up your disk before using express setup.

To perform an express hard-disk setup, follow these steps and refer to Figure 4-1.

- a. From the AlphaBIOS Setup menu, select “Hard Disk Setup,” and press Enter.
- b. Press F7 to enter express setup.
- c. Press F10 to continue with the setup.

Using the AlphaBIOS Menus

Figure 4-1 Express Hard Disk Setup



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Hard Disk Setup			
Disk 0	NCRC810 #0, SCSI ID 0	1001 MB	
	Partition 1	995 MB	FAT
	Partition 2	6 MB	FAT
Disk 1	NCRC810 #0, SCSI ID 3	510 MB	
	Partition 1	200 MB	FAT
	Unused	310 MB	

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Note: ARC vs AlphaBIOS

With ARC firmware, initial hard-disk partitioning and formatting was accomplished using a utility called ARCINST.EXE, distributed on the Windows NT CD-ROM. This utility was run from a command line. With AlphaBIOS, hard-disk setup is integrated into the menu-based interface, and path name descriptions correspond to

Using the AlphaBIOS Menus

those used by the Windows NT Disk Administrator. For example:
ARC Path Name = scsi(0)disk(0)rdisk(0)partition(1); AlphaBIOS
Path Name = Disk 0, Partition 1.

3. Put the Windows NT CD into the CD-ROM drive.
4. Start AlphaBIOS Setup, select “Install Windows NT,” and press Enter.

To complete the installation, refer to your operating system documentation.

Manually Setting Up the Hard Disk

For information on manually managing hard disks, see “Hard Disk Setup Menu” in Chapter 5.

Caution: Unlike other parts of AlphaBIOS setup, hard disk setup makes changes to your disk configuration as you enter them. Use care when changing your hard-disk arrangement, because unintended data loss can occur.

System Setup Tasks

The CMOS Setup menu is used for a variety of system settings and is divided into two modes, standard and advanced. Table 4-1 lists the tasks that can be performed in the two CMOS Setup modes:

Table 4-1 CMOS Setup Tasks

Standard Mode	Advanced Mode
Auto Start	Memory test at start-up
Date and time	PCI parity
Diskette configuration	Password protection
Keyboard configuration	Console selection

Using the AlphaBIOS Menus

To enter standard CMOS setup mode:

1. From the AlphaBIOS Setup menu, select “CMOS Setup,” and press Enter.

To enter advanced CMOS setup mode:

1. From the AlphaBIOS Setup menu, select “CMOS Setup,” and press Enter.
2. In the CMOS Setup menu, press F6.

Note: ARC vs AlphaBIOS

With ARC firmware, a number of settings stored in CMOS and NVRAM are set using several separate ARC firmware selections. With AlphaBIOS, these settings are integrated into the CMOS Setup program.

Displaying Your System Configuration

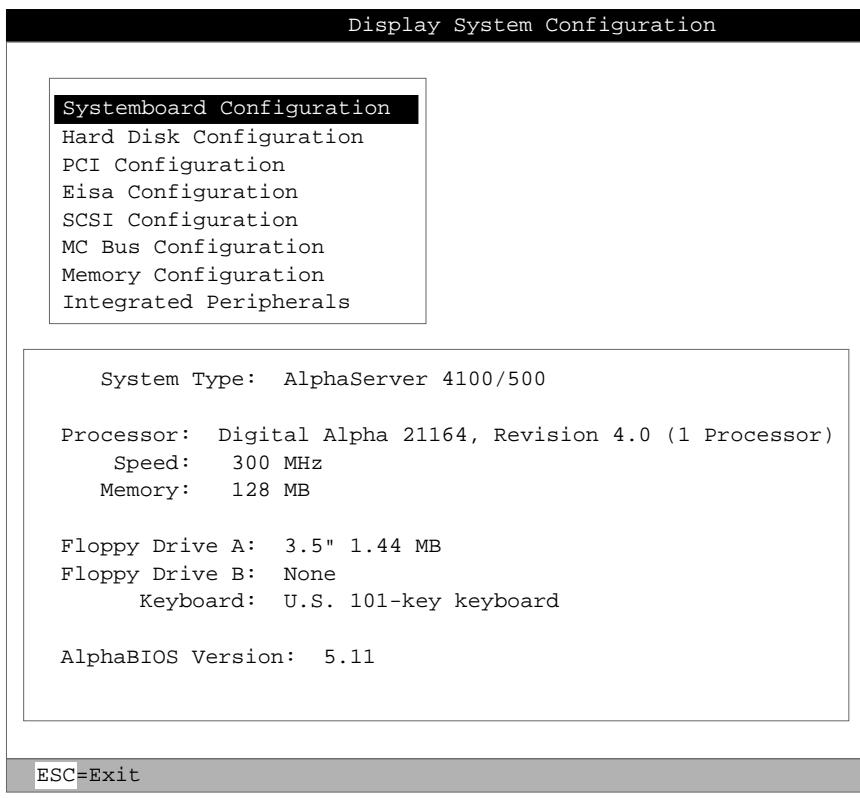
You can use AlphaBIOS to display your system configuration in an easy-to-read format organized by category: system board, memory, hard disk, PCI options, SCSI devices, and peripherals.

To display your system configuration, follow these steps and refer to Figure 4-2:

1. From the AlphaBIOS Setup menu, select “Display System Configuration,” and press Enter.
2. In the Display System Configuration menu, use the arrow or Tab keys to select the configuration category you want to see.

Using the AlphaBIOS Menus

Figure 4-2 Display System Configuration Menu



Note: ARC vs AlphaBIOS

The system configuration display in ARC firmware provides general information about system setup. In contrast, the system configuration display in AlphaBIOS displays detailed information categorized by major subsystem. In addition, for many of the elements listed, you can select the element and obtain additional detailed information.

Support for multiple languages, which was recently added to ARC firmware, is not currently a feature of AlphaBIOS.

For detailed information on the Display System Configuration menus, see "Display System Configuration Menu" in Chapter 5.

Using the AlphaBIOS Menus

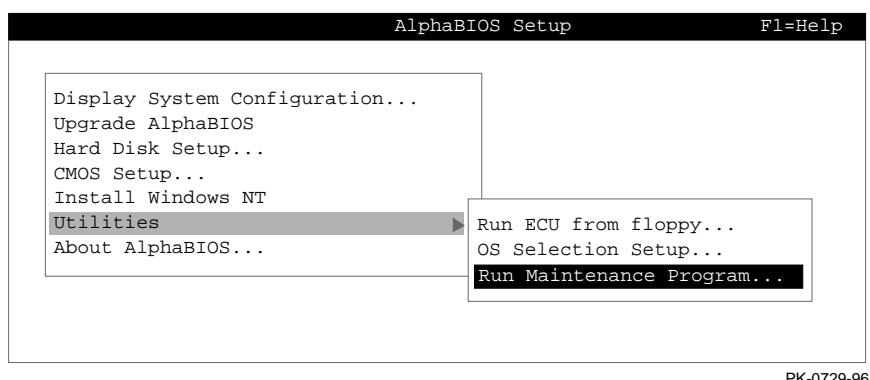
Running a Configuration Utility

If you change your system configuration—for example, by adding a new EISA adapter or another RAID drive, you will have to run an EISA or RAID configuration utility. As you modify your system, you might be required to run other types of configuration utilities as well. Configuration utilities (also called maintenance programs) are run directly from the AlphaBIOS Utility menu.

Users of OpenVMS Alpha or Digital UNIX: Users of the OpenVMS Alpha and Digital UNIX operating systems need to switch from the SRM console to the AlphaBIOS console to run a configuration utility. To switch, type either of the following commands at the SRM console prompt: `arc` or `ecu`. This command will access the AlphaBIOS Boot menu. To access the Setup menu from the Boot menu, press F2.

- ▶ To run a configuration utility:
 1. From the AlphaBIOS Setup menu, select “Utilities.” From the submenu that appears, select “Run Maintenance Program,” and press Enter. See Figure 4-3

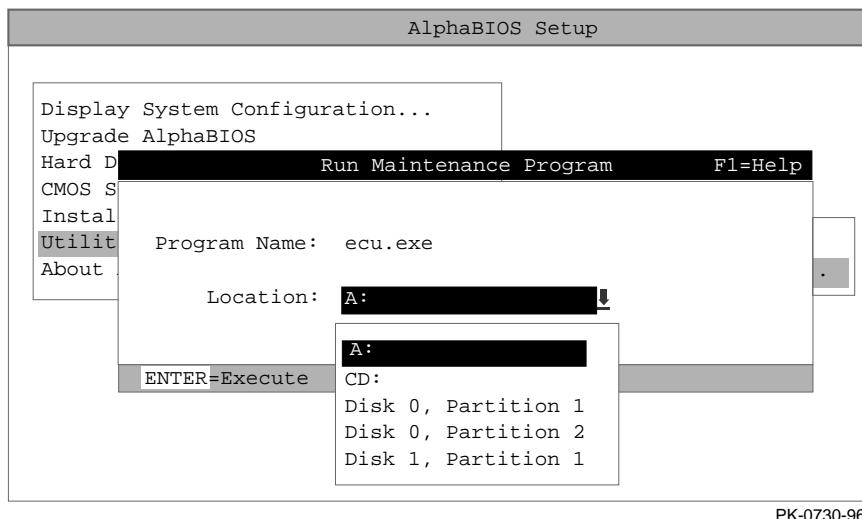
Figure 4-3 Select Run Maintenance Program



2. In the Run Maintenance Program dialog box, type the name of the program to be run in the Program Name field. Then tab to the Location list box, and select the hard-disk partition, diskette, or CD-ROM drive from which to run the program.
3. Press Enter to execute the program. See Figure 4-4.

Using the AlphaBIOS Menus

Figure 4-4 Execute Run Maintenance Program



Note: If you are running a utility from a diskette, you can simply type the utility's name into the Program Name field, and press Enter. The diskette drive is the default selection in the Location field. Use Alt+Down arrow when a list box is selected, to open the list.

Setting Up Password Protection

Password protection provides two levels of security for your system: setup protection and startup protection. When system setup protection is enabled, a password is required to start AlphaBIOS Setup. When startup password protection is enabled, a password is required before the system initializes.

Caution: Take care to remember your password. To clear the password requires replacement of a system board component.

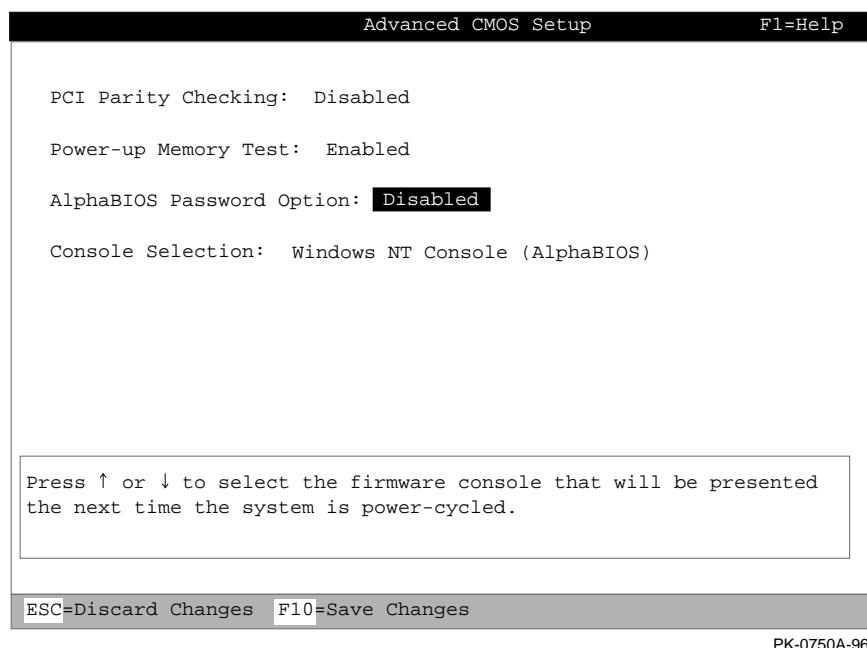
Startup password protection provides more comprehensive protection than setup password protection because the system cannot be used at all until the correct password is entered.

Using the AlphaBIOS Menus

To enable password protection:

1. From the AlphaBIOS Setup menu, select “CMOS Setup,” and press Enter.
2. In the CMOS Setup menu, press F6 to enter advanced CMOS setup mode.
3. In the Advanced CMOS Setup menu, shown in Figure 4-5, select “AlphaBIOS Password Option.”

Figure 4-5 Advanced CMOS Setup Menu



Use the arrow keys to select the type of protection you want. An explanatory dialog box appears. Read the dialog box and press Enter to continue.

4. Enter your password in the “Enter New Password” dialog box, then press Enter.
5. Enter your password in the “Confirm New Password” dialog box, then press Enter.
6. Press F10 to save your changes.

Note: If you want to change your password, simply set up your password again.

Troubleshooting Suggestions

Table 4-2 describes symptoms of hard disk problems and suggests possible causes and solutions.

Table 4-2 Troubleshooting

Error message	Possible Cause	Corrective Action
“Internal error occurred”	Incompatible or failed disk cables.	Try another cable known to be good.
	Disk controller not configured.	Check your hard-disk controller documentation to see if you have to run a configuration utility to set up your hard-disk.
	Disk controller malfunction.	Test controller functioning using the controller’s diagnostic utility. If an error is found, contact your service representative for a replacement.
	Improper SCSI termination.	Check to see that terminating resistor packs are removed from all drives except the controller itself and the last drive connected to it.
“No hard drives were found connected to your computer”	No hard disk installed.	Install hard disk.
	Cable not connected to either the disk or controller.	Check the cable connections to ensure that cable connectors are fully seated.
	No power to drive.	Check cable connections. If problem persists, try connecting the drive to a different power connector.
	Disk drive malfunction.	Try replacing the drive with a drive known to be good. If problem persists, hard drive is defective. Contact your service representative.
“Perform an express disk setup?”	Hard disk 0 does not have any partitions defined.	Perform an express disk setup to automatically create default disk partition arrangement on hard disk 0.

Using the AlphaBIOS Menus

Upgrading AlphaBIOS

As new versions of Windows NT are released, it might be necessary to upgrade AlphaBIOS to the latest version. As improvements are made to AlphaBIOS, you may want to upgrade to take advantage of new AlphaBIOS features.

To upgrade from an earlier version of AlphaBIOS, follow these steps:

1. Insert the diskette or CD-ROM containing the AlphaBIOS upgrade.
2. If you are not already running AlphaBIOS Setup, access the AlphaBIOS Setup menu by restarting your system and pressing F2 when the Boot menu is displayed.
3. From the AlphaBIOS Setup menu, select “Upgrade AlphaBIOS” and press Enter. When you choose this option, the existing AlphaBIOS searches for an executable AlphaBIOS update file, first on CD-ROM, and then on diskette. Once the update file has been found, it executes it, and the AlphaBIOS is upgraded.
4. After the upgrade is complete, the system either resets automatically or prompts you to reset the system.

Upgrading from the SRM Console

To upgrade using the SRM console, follow these steps:

1. Insert the diskette or CD-ROM containing the AlphaBIOS upgrade.
2. At the console prompt (>>>) type the following command:

```
>>> boot dva0
```

The system will display this menu:

```
Display  
Exit  
List  
Update  
Verify
```

```
UPD>
```

Using the AlphaBIOS Menus

3. At the UPD> prompt, type the appropriate update command. To update AlphaBIOS only:

```
UPD > update arc
```

To update both SRM and AlphaBIOS:

```
UPD> update
```

To update SRM only:

```
UPD> update srm
```

4. When the update is complete, type `exit` to return to the console prompt.

5

Index to the AlphaBIOS Menu Functions

This chapter presents detailed explanations of the elements found in each of the AlphaBIOS menus. The following topics are covered:

- Hard Disk Setup Menu
- Operating System Selection Setup Menu
- Display System Configuration Menu
 - Hard Disk Configuration Menu
 - PCI Configuration Menu
 - EISA Configuration Menu
 - SCSI Configuration Menu
 - Memory Configuration Menu
 - Integrated Peripherals Menu
- Run Maintenance Program Menu
- CMOS Setup Menu
 - Standard CMOS Setup Menu
 - Advanced CMOS Setup Menu

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Hard Disk Setup Menu

This section details all of the information presented on the AlphaBIOS Hard Disk Setup menu. An example is shown in Figure 5-1.

Figure 5-1 Hard Disk Setup Menu

Hard Disk Setup					
1	Disk 0	NCRC810 #0, SCSI ID 3	510 MB		
2		Partition 1	200 MB	NTFS	
		Unused	310 MB		
	Disk 1	NCRC810 #0, SCSI ID 5	1001 MB		
		Partition 1	995 MB	NTFS	
		Partition 2	6 MB	FAT	
3	INSERT>New DEL>Delete F6=Format F7=Express ESC=Exit				

1. Disk ①

The Disk line describes the physical characteristics of the hard disk. This information is presented for informational purposes and is not selectable or editable.

For detailed information on the fields presented on the Disk line, see the section "Hard Disk Configuration Menu," later in this chapter.

2. Partitions ②

The Partition line(s) describes how space on the drive is allocated to logical drives.

Fields on the partition line include:

Partition number. Within a single drive, partition numbers are assigned in sequential order: 1, 2, 3, and so on. The partitions populate the drive from the innermost cylinders to the outermost cylinders. If you have a large hard disk (over 800 MB) and plan to use the FAT file system, it is a good idea to break the disk into several smaller partitions because the FAT file system uses disk space more efficiently at smaller partition sizes. This is not a concern for the NTFS file system, however, as it uses disk space very efficiently at all partition sizes.

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Partition size. The partition size is the raw (unformatted) storage capacity of the partition. Actual storage space will differ based on the file system with which the partition is formatted.

Partition format. The file system (if any) used on a partition. This field will display FAT, NTFS, or unknown (if the partition is unformatted).

3. Disk Setup Options ③

Insert partition. Use this option to create new partitions. Before creating a new partition, be sure to select an unpartitioned space. Pressing the Insert key while an already-partitioned space is selected causes an informational error to be displayed.

Delete partition. Use this option to delete existing partitions. Before deleting a partition, make sure any data that you wish to save on the partition has been backed up. Deleting a partition deletes all data on the partition being deleted, but leaves the rest of the disk unaffected. Pressing the Delete key while an unpartitioned space is selected causes an informational error to be displayed.

Format partition. By pressing F6, you can use this option to format a partitioned space with the FAT file system.

Express setup. By pressing F7, you can use this option to create the default recommended partition arrangement for Windows NT on your system. For more information on the recommended partition arrangement, see “Setting Up Your Hard Disk” in Chapter 3.

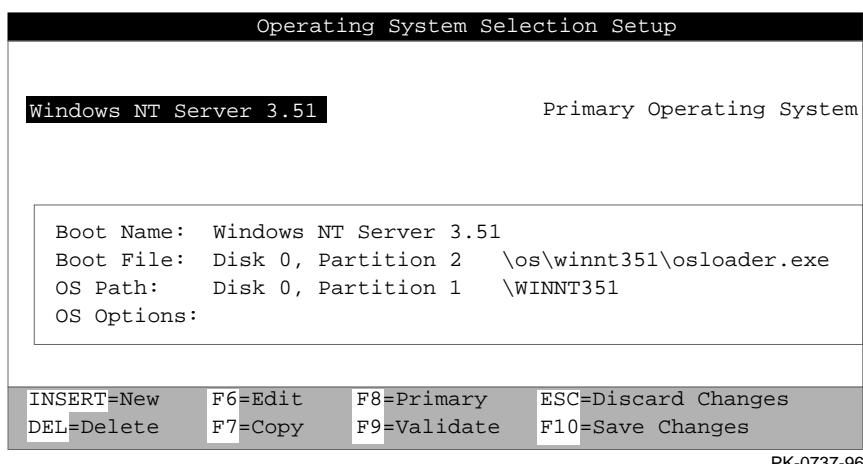
Exit. Press the Escape key to return to the AlphaBIOS Setup menu.

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Operating System Selection Setup Menu

This section details the information presented on the AlphaBIOS Operation System Selection Setup Menu. An example is shown in Figure 5-2. The process of setting up your operating system selections is somewhat like using an editor. You can make all the changes you want to your operating system selections, and then either save your changes or exit without saving your changes.

Figure 5-2 Operating System Selection Setup Menu



1. Boot Name

Each boot name is associated with an operating system selection. Windows NT Setup automatically creates a boot name each time you install the operating system. Because the boot name is only a name, you can modify the boot name at any time without affecting the rest of the operating system selection. Note that the boot name must have at least one character.

2. Primary Operating System

The primary operating system is the OS that appears first on the AlphaBIOS boot menu. It is also the version of the OS that automatically starts if Auto Start is selected. You can make any of the operating system selections the primary operating system.

3. Boot File

The Boot File line describes the disk, partition, path, and name of the file that AlphaBIOS passes control to during the process of starting the operating system. This setting is created along with the operating system selection during Windows NT Setup, and it is usually not modified by the user. However, this setting can be

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modified if necessary. For example, a developer testing different versions of OSLOADER.EXE can store the different versions in different locations and modify this line to start the operating system with the different versions as needed.

During Operating System Selection Setup, the disk and partition for the location of the boot file can be selected from a list of choices presented in a list box. To open a list of values for the field, press the Alt and down arrow keys together. When you select a boot file location and name, AlphaBIOS searches for the specified program on the specified partition. If the search fails, a warning appears, saying that the file does not exist. You are given the choice to continue with the changes anyway or to cancel the operation and fix the problem.

Note that because the boot file must be located in a FAT partition, only FAT partitions are available as the boot partition within the list box.

4. OS Path

The OS Path line describes the disk, partition, and path to the operating system root directory for an operating system selection.

During Operating System Selection Setup, the disk and partition for the location of the boot file can be selected from a list of choices presented in a list box. To open a list of possible values for the field, press the Alt and down arrow keys at the same time. When you select or enter an OS path, AlphaBIOS searches for the directory. If the search fails, a warning appears, saying that the directory does not exist. You are given the choice to continue with the changes anyway or to cancel the operation and fix the problem.

5. OS Options

The OS Options line lists the startup parameters passed to the operating system for an operating system selection. One example of a startup parameter is whether to start the operating system in debug mode. By default, Windows NT does not add any entries to this field. This field can be modified.

6. OS Selection Setup Options

You can use the options listed at the bottom of the menu to edit operating system selections. When you edit an OS selection, the fields of the OS Selection are validated when you exit the OS selection setup menu. Depending on the option you choose, one of the following dialog boxes will appear.

New OS Selection. Pressing the Insert key displays the Insert New Operating System Selection dialog box, with default values for the new OS selection already filled in. You can change these values as necessary.

Delete OS Selection. Pressing the Delete key tags the currently selected OS selection for deletion. Although the OS selection is removed from the menu, it is not actually deleted until you save your changes.

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You can also delete all of your OS selections at once by pressing the Control and Delete keys at the same time while in the Operating System Selection Setup menu.

Note: If you delete all of your OS selections, a dialog box appears informing you that no OS selections exist and offering three options. You can create a new OS selection, exit without saving changes, or exit and save changes.

Edit OS Selection. You can edit all of the values of an OS selection by selecting the OS selection to edit and pressing F6. A dialog box appears with current information. You can then edit all of the OS selection fields.

Copy OS Selection. You can make it easy to create a new OS selection by using an existing OS selection as a template. To do this, select the OS selection you want to make a copy of and press F7 to make a copy of it. A dialog box appears with the values of the OS selection you selected. You can then edit all of the OS selection fields. Note that if you do not make any changes, a duplicate copy of the OS selection you copied is made.

Validate OS Selection. Pressing F9 in the Operating System Selection Setup menu allows you to validate the fields in the currently selected OS selection. The validation routine checks that the OS loader file and OS directory fields contain valid paths, and that the OSLOADER.EXE file exists in the directory specified. At the end of the validation, a dialog box appears describing the results of the validation. If there is an error in an OS selection, the validation routine displays a dialog box describing the component of the OS selection that is in error. At this point you can choose to edit the OS selection to correct the error, or delete the OS selection altogether.

You can also validate all of the OS selections at once by pressing the Control and F9 keys at the same time. All OS selections are validated in the order they are listed on menu.

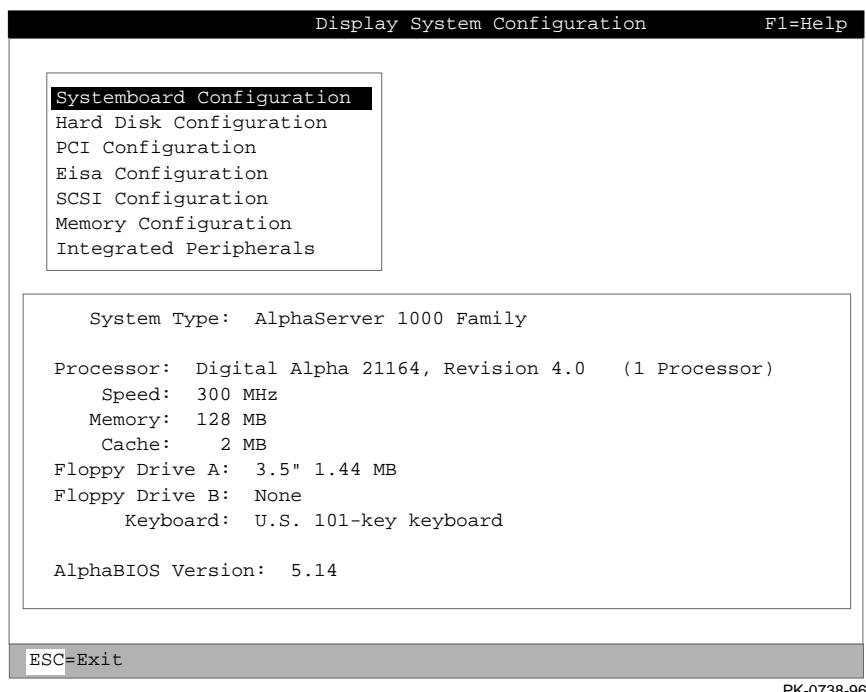
Primary Operating System. You can set any of the OS selections to be the primary operating system by selecting the OS selection and pressing F8. When you make an OS selection primary, it is displayed first on the Operating System Selection Setup menu and the text "Primary Operating System" appears next to the OS selection. In addition, the primary operating system is displayed first on the AlphaBIOS boot menu and is automatically started if Auto Start is enabled.

Exit. Pressing the Escape key returns you to the AlphaBIOS Setup menu.

Display System Configuration Menu

Information about the system board configuration is presented when you select “Systemboard Configuration” and press Enter. An example is shown in figure Figure 5-3.

Figure 5-3 Display System Configuration Menu



1. System Type

The System Type field shows the system family to which the system board in your system belongs. Alpha system families are defined by the basic architecture of the system board. Individual system models within the family can have different processors, run at different speeds, have different options, etc.

2. Processor

The Processor field shows the model and revision of processor installed on your system board—for example, 21064. Revision level information can be useful in troubleshooting problems with technical support personnel.

3. Speed

The Speed field shows the speed at which the processor runs internally.

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4. Cache

The Cache field shows the amount, in kilobytes, of static RAM cache memory installed. Cache memory is used to speed system performance by acting as an intermediary between the processor and the system's main memory, which uses slower dynamic RAM.

5. Memory

The Memory field shows the amount, in megabytes, of main memory installed.

6. AlphaBIOS Version

The AlphaBIOS Version field shows the version of AlphaBIOS currently running on your system. The AlphaBIOS Version field has three parts: the major version number, minor version number, and build date. The major version number signifies the overall level of the BIOS; that is, it represents major functionality. The minor version number signifies minor enhancements that have been made since the last major revision. The build date is the date and time the BIOS was compiled.

Hard Disk Configuration Menu

Information about the hard disk configuration is presented when you select Hard Disk Configuration and press Enter. An example is shown in Figure 5-4.

Figure 5-4 Hard Disk Configuration Menu

Display System Configuration						
Systemboard Configuration						
Hard Disk Configuration						
PCI Configuration						
Eisa Configuration						
SCSI Configuration						
Memory Configuration						
Integrated Peripherals						
Disk 0	NCRC810 #0, SCSI ID 3	510 MB				
⑥ DEC	RZ25L (C) DEC0007					
Partition 1		200 MB				NRFS
Partition 2		200 MB				FAT
Unused		110 MB				
Disk 1	NCRC810 #0, SCSI ID 5	1001 MB				
DEC	RZ26 (C) DECT386					
Partition 1		995 MB				NTFS
Partition 2		6 MB				FAT

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Fields in the hard disk configuration menu include:

① Physical disk ID. The physical disk ID is based on the SCSI ID. The disk with the lowest SCSI ID is disk 0; the disk with the next lowest SCSI ID is disk 1, and so on.

② Controller. The controller is the brand and model of SCSI chip used on the SCSI controller.

③ Controller number. The controller number is based on how many SCSI controllers of a particular type are installed in the system. The first controller of a type is always numbered 0. For example, if two NCR 810 controllers and one QLogic controller existed in a system, they would be numbered as follows:

First NCR 810 = NCR810 #0, Second NCR 810 = NCR 810 #1, QLogic = QLogic #0

④ SCSI ID number. The SCSI ID number is a unique number you assign to each SCSI device installed in the system. This is usually done via jumpers or a thumb wheel attached to the drive housing or by jumpers supplied on the StorageWorks backplane.

⑤ Size. This is the raw capacity of the drive. Formatting the drive with different file systems—for example, FAT and NTFS—may result in different usable sizes because of the differences in how storage is managed under those file systems.

⑥ Drive manufacturer ID. This line identifies the type of drive and the manufacturer, as well as the firmware revision of the drive.

PCI Configuration Menu

Information about all the PCI devices in your system is presented when you select “PCI Configuration” and press Enter. An example is shown in Figure 5-5.

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Figure 5-5 PCI Configuration Menu

Display System Configuration			
Systemboard Configuration			
Hard Disk Configuration			
PCI Configuration			
Eisa Configuration			
SCSI Configuration			
Memory Configuration			
Integrated Peripherals			
Device Name	Device Type	Revision	Physical Slot
Intel 82375 PCEB	EISA bridge	5	PCI0-Embedded
Digital 21040	Ethernet	35	PCI0-2
S3, DevID=8811	VGA	0	PCI0-4
NCRC810	SCSI	2	PCI0-5
NCRC810	SCSI	17	PCI1-Embedded

ENTER=Select ESC=Exit

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1. Device Name

This is the name and model of the device as recorded in the device's firmware.

2. Device Type

The device type lists the function of the device in the system.

3. Physical Slot

The physical slot lists the actual PCI slot number to which the device is attached. Refer to your system manual for the physical location of PCI slots on your particular system board.

4. Revision

The revision level of the device signifies the number of times it has been updated by the manufacturer.

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PCI Device Detail

You can also get additional detail about any of the PCI devices listed by following this procedure:

- ▶ To get additional detail about a PCI device
 - 1. Press Enter to allow selection in the device list.
 - 2. Select the device about which you want additional detail.
 - 3. Press Enter, and the detail is displayed, as shown in Figure 5-6.
 - 4. Press Escape to return to the table of PCI devices.

Figure 5-6 Advanced PCI Information Menu

Advanced PCI Information		
Bus Number=0, Device Number=6, Function Number=0		
Configuration Header Space:		
Register Name	Offset	Value
Vendor ID	00h	1000h
Device ID	02h	0001h
Command	04h	0147h
Status	06h	0200h
Revision ID	08h	01h
Prog. I/F	09h	00h
Sub Class Code	0Ah	00h
Class Code	0Bh	00h
Cache Line Size	0Ch	00h
Latency Timer	0Dh	20h
Header Type	0Eh	00h
BIST	0Fh	00h
Base Address 0	10h	00010001h ▼
ENTER=Continue		

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1. Bus Number

The bus number is the virtual PCI bus number.

2. Function Number

The function number represents the number assigned to a particular function on a multifunction device. For example, a combination Ethernet/SCSI controller would be listed twice, with the first function listed as function 0 and the other function listed as function 1.

3. Device Number

The device number is the PCI bus device number.

4. Configuration Header Space

The configuration header space displays the PCI configuration space information for the selected device. This information is supplied for system engineers.

EISA Configuration Menu

Information about all the EISA devices in your system is presented when you select “EISA Configuration” and press Enter. An example is shown in Figure 5-7.

Figure 5-7 EISA Configuration Menu

Display System Configuration			F1 = Help
Systemboard Configuration			
Hard Disk Configuration			
PCI Configuration			
Eisa Configuration			
SCSI Configuration			
Memory Configuration			
Integrated Peripherals			
Device Name	Device Type	Physical Slot	
DEC5000	Other	Embedded	
DEC4220	Network	7	
Floppy	Disk	Embedded	

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1. Device Name

This is the name and model of the device as recorded in the device's firmware.

2. Device Type

The device type lists the function of the device in the system.

3. Physical Slot

The physical slot lists the actual EISA slot number to which the device is attached. Refer to your system manual for the physical location of EISA slots on your particular system board.

SCSI Configuration Menu

Information about the configuration of your system's SCSI devices is presented when you select "SCSI Configuration" and press Enter. In Figure 5-8, only one controller is installed in the system. If additional controllers were installed, a menu, allowing you to select which controller you wish to display information about, is displayed before detailed information about the controller is displayed.

Figure 5-8 SCSI Configuration Menu

Display System Configuration					
Systemboard Configuration					
Hard Disk Configuration					
PCI Configuration					
Eisa Configuration					
SCSI Configuration					
Memory Configuration					
Integrated Peripherals					
① NCRC810 #0, SCSI ID 7, SCSI Bus 0					
②	③	④	⑤		
SCSI ID	Device	Size	Description		
0	Disk 0	1001 MB	DEC	RZ26L	(C) DEC440C
1	Disk 1	510 MB	DEC	RZ25L	(C) DEC0007
4	CD-ROM		DEC	RRD45	(C) DEC1645

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1. SCSI Controller Information ①

The SCSI controller information describes the physical characteristics of the selected SCSI controller. Information listed in this field includes:

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Controller. The controller is the brand and model of SCSI chip used on the SCSI controller.

Controller number. The controller number is based on how many SCSI controllers of a particular type are installed in the system. The first controller of a type is always numbered 0.

SCSI ID number. The SCSI ID number is a unique number assigned to the SCSI controller. This must be a unique number. The standard controller numbering scheme is for controllers to be SCSI ID 7.

SCSI bus number. The SCSI bus number indicates whether the controller is first or second in the system. The first controller is tied to SCSI bus 0, and the second controller is tied to SCSI bus 1.

2. SCSI ID ②

The SCSI ID number is a unique number you assign to each SCSI device installed in the system. This is usually done via jumpers on the device or on the StorageWorks backplane.

3. Device Type ③

The device type displays whether the device is a hard disk, CD-ROM, scanner, or other type of device.

4. Size ④

This is the raw capacity of the drive. Formatting the drive with different file systems—for example, FAT and NTFS—may result in different usable sizes because of the differences in the way storage is managed under those file systems. This information is left blank if it is not applicable to a device, for example, a scanner.

5. Description ⑤

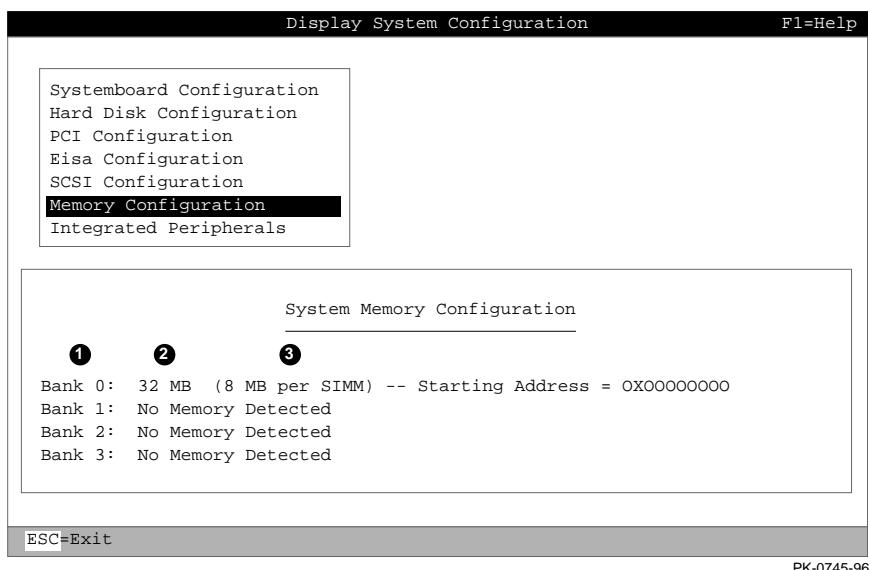
This is the name and model of the device as recorded in the device's firmware.

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Memory Configuration Menu

Information about the memory configuration is presented when you select Memory Configuration and press Enter. An example is shown in Figure 5-9.

Figure 5-9 Memory Configuration Menu



1. Installed Memory

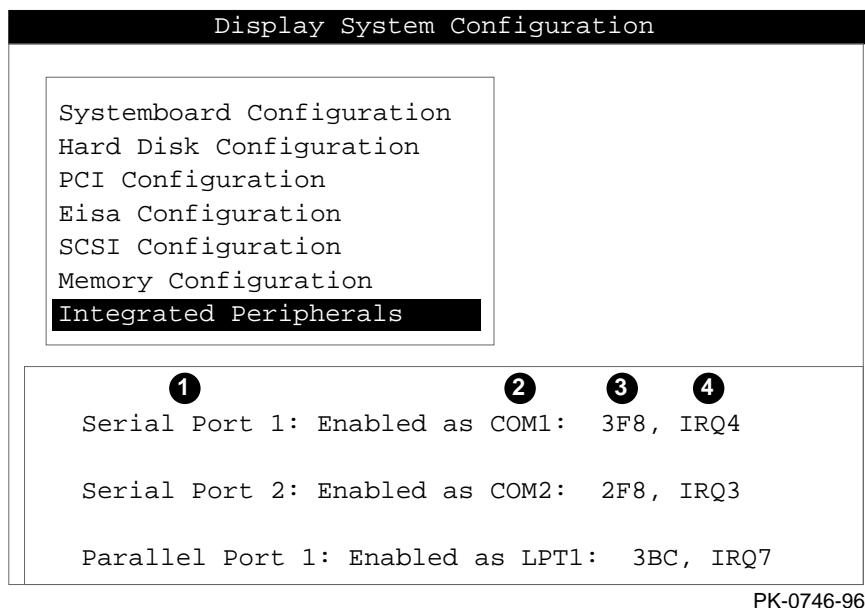
The amount of memory, in megabytes, installed in your system.

- ①Memory bank
- ②Installed memory
- ③Memory per SIMM

Integrated Peripherals Menu

The integrated peripherals, such as parallel and serial ports, installed in your system are detailed in this menu, shown in Figure 5-10.

Figure 5-10 Integrated Peripherals Menu



1. Device type ①

This is the physical device as it exists on the system board.

2. MS DOS name ②

This shows whether the device is enabled, and if it is enabled, the addressable MS-DOS name for the device.

3. Port address ③

The port address is the physical memory location from and to which data travels as it is received into the device, and sent from the device, respectively.

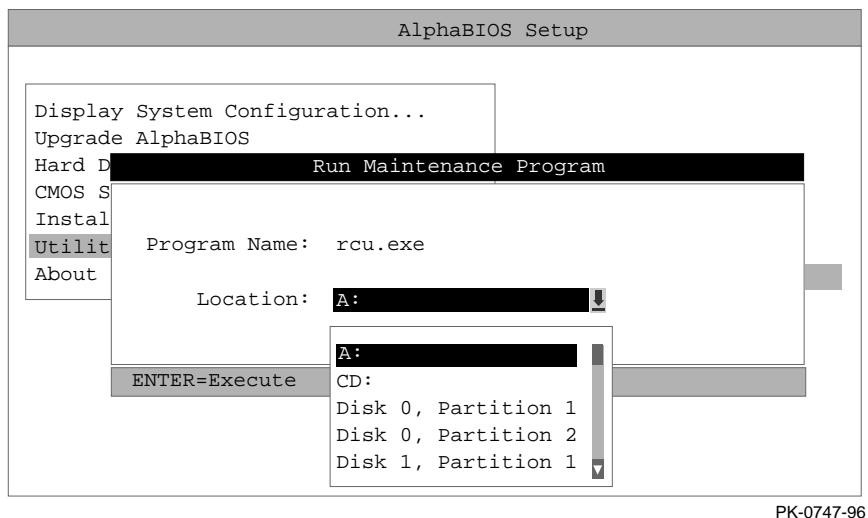
4. Interrupt ④

This is the interrupt request line (IRQ) used by the device to get the CPU's attention.

Run Maintenance Program Menu

This section details the information presented on the AlphaBIOS Run Maintenance Program Menu. An example is shown in Figure 5-11.

Figure 5-11 Run Maintenance Program Menu



Location

The location is the location from which the program in the Program Name field will be run if no path is entered along with the program name. To display a list of all available disks and partitions, press the Tab key, then use the down arrow keys. Once the list is displayed, use the up arrow key to cycle through the selections. To highlight a location, press the Tab key and the arrow key.

Program Name

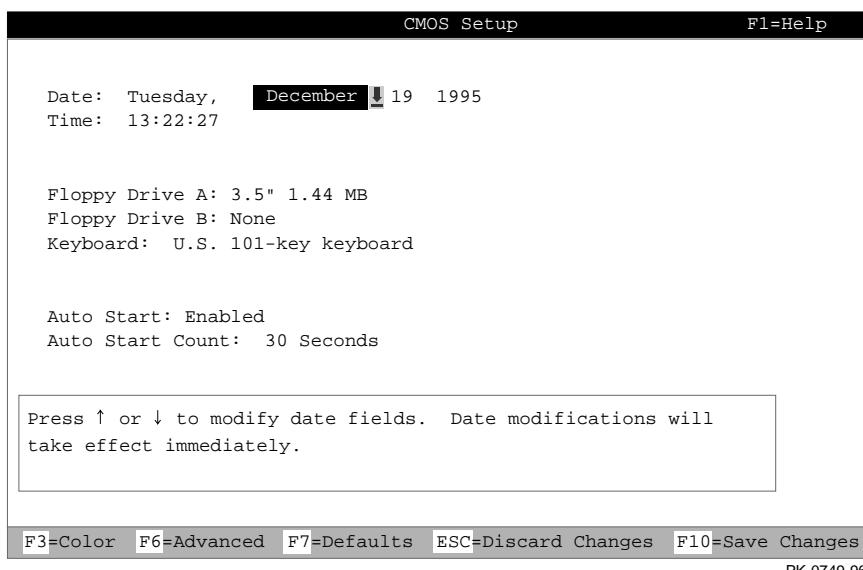
The program name is the program to be run. It must be an executable program with a .EXE filename extension. However, when entering the program name, it is not necessary to type the extension.

Programs written to be run from AlphaBIOS must be written as ARC compatible images.

CMOS Setup Menu

CMOS Setup is used to configure several basic system parameters. There are two modes for CMOS Setup, standard and advanced. Standard CMOS setup, shown in Figure 5-12 is used to configure basic system parameters. Advanced CMOS setup, shown in Figure 5-13, is used for system-specific parameters and password protection. To move through the fields, use the Tab key.

Figure 5-12 Standard CMOS Setup Menu



1. Date and Time

When setting the time, use the 24-hour format; for example, 10:00 p.m. is 22:00:00.

2. Floppy Drive

AlphaBIOS supports the following types of diskette drives:

- 5.25 inch, 1.2 MB
- 3.5 inch, 1.44 MB
- 3.5 inch, 2.88 MB

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3. Keyboard

The keyboard setting makes it possible to use just about any language keyboard available. To ensure correct character mappings, the language of your keyboard, Windows NT, and the keyboard language selection in CMOS setup should all match.

4. Auto Start and Auto Start Count

The Auto Start setting determines whether the primary operating system is automatically started after the system is reset or power-cycled. The Auto Start Count setting is the amount of time the boot menu is displayed before the default system is automatically started. This delay gives you the opportunity, after resetting or power-cycling the system, to select another operating system to start or to enter AlphaBIOS Setup.

5. Standard CMOS Setup Options

Color. Pressing F3 repeatedly cycles through the available AlphaBIOS color schemes.

Advanced. Pressing F6 displays the Advanced CMOS Setup menu.

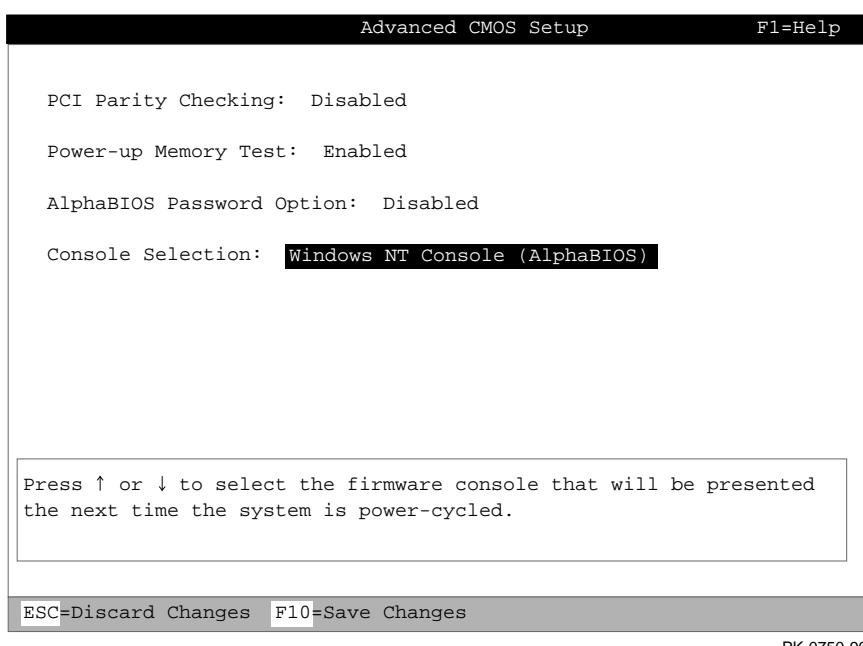
Defaults. Pressing F7 restores the default standard CMOS setup values without affecting the advanced CMOS setup values.

Discard Changes. Pressing Escape restores the settings in effect when you started CMOS Setup. This option also discards changes made in advanced CMOS setup.

Save Changes. Pressing F10 saves changes made in both the standard and advanced modes of CMOS Setup.

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Figure 5-13 Advanced CMOS Setup Menu



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1. PCI Parity Error Checking

Possible settings for PCI parity checking are enabled and disabled by using this setting. Parity checking is a method for ensuring data integrity across the PCI bus. AlphaBIOS supports PCI option cards that generate parity as well as those that do not. Unfortunately, many older, and even some newer, PCI option cards do not fully comply with the PCI specification. One of the results of this non-compliance can be incorrect generation of PCI parity.

To accommodate cards that do not correctly generate PCI parity, Alpha systems with PCI expansion slots leave PCI parity checking disabled by default. If you are certain that all of your PCI option cards correctly implement PCI parity generation, you can turn parity checking on. If PCI parity checking results in unstable system behavior, such as lockups, you can turn PCI parity checking off again.

If you discover that a card in your system does not correctly generate PCI parity, you can check with the card manufacturer about getting an updated version of the card with PCI parity generation correctly implemented.

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2. Power-up Memory Test

Possible settings for the power-up memory test are enabled and disabled. When enabled, the memory test writes and then reads patterns of data to main system memory. This testing verifies the integrity of main system memory.

3. Password Setup

Possible settings for password setup are “disabled,” “setup password protection,” and “startup password protection.” For more information on password protection, see “Setting Up Password Protection” in Chapter 2.

4. Console Selection

Select the firmware console to be presented the next time the system is reset or started up. Selections are Digital UNIX (SRM), OpenVMS Alpha (SRM), or Windows NT (AlphaBIOS).

5. Advanced CMOS Setup Options

Discard changes. Pressing Escape restores the settings in effect when you started advanced CMOS setup. This does not discard changes made to standard CMOS setup.

Save Changes. Pressing F10 saves changes made in advanced CMOS setup. Note that, when exiting CMOS Setup, you must also save your changes at the Standard CMOS Setup menu for the changes to be stored permanently.